

FRIDAY, MARCH 30, 2007

The Asahi Shimbun

Japan's Leading National Newspaper | English Edition

POSSIBLE BREAKTHROUGH

Alzheimer's vaccine works safely in mice

Researchers are preparing for the start of clinical tests on human patients.

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A new vaccine shows great promise in reversing the symptoms of Alzheimer's disease, including memory loss and deteriorating learning abilities, without causing serious side effects, a team of researchers said.

The researchers from Nagoya University and the National Institute for Longevity Sciences in Obu, Aichi Prefecture, said mice with Alzheimer's disease regained their cognitive functions after being given the oral vaccine.

The advantage of the vaccine is that it produces antibodies within the body to fight the disease, the researchers said. Other vaccines involve the injection of artificial antibodies, which have been blamed for serious side effects.

The team is preparing to conduct clinical tests on a small number of patients, according to the researchers. If successful, the vaccine will

have a definite edge over other drugs under development in the United States and Europe that still have safety and cost problems.

The key to the Japanese vaccine is the removal from the brain of a protein called amyloid.

An accumulation of the protein causes Alzheimer's disease.

The new vaccine consists of a nonpathogenic virus whose shell contains genes that create amyloid.

When the vaccine is taken orally, intestinal cells react to the "fake virus," prompting lymphocytes to produce antibodies that connect themselves to amyloid accumulated in the brain.

The antibodies scatter and remove the protein.

The team tested the vaccine on 28 mice genetically modified to develop Alzheimer's disease.

After displaying symptoms of the neurological disorder, 14 of the 10-month-old mice

were given the vaccine, while the other 14 were not.

Three months later, the mice underwent four types of tests on memory, learning and other functions.

The performances of almost all the mice that took the vaccine were restored to levels before the symptoms started to show. But the scores for the mice in the control group decreased sharply.

In 2003, the researchers proved that amyloid in the brains of mice disappeared after they took the vaccine.

The world's first vaccine against the disease was developed by an Irish drug maker. But development was terminated in 2002 after 6 percent of the patients in clinical testing developed serious encephalitis, or inflammation of the brain.

The Japanese researchers said the new vaccine is safer because it does not involve the direct injection of protein or other substances.

They also said the vaccine can be mass-produced and is easy to take.

The team is to present its findings at a general meeting of the Japanese Association of Medical Sciences that starts April 6 in Osaka.